Voytilla, Marykay

From: Kelly, Joyce
Sent: Monday, August 11, 2014 7:26 AM
To: Voytilla, Marykay
Cc: Fleming, Sheila; Filippini, Mark; Maxwell, Grady; Chu, Ed
Subject: 14th floor air quality concerns, proposal and request

Hello Mary Kay,

Thank you for your diligence to ensure that the move goes as smoothly as possible. Although there are positives to the new space, the purpose of this email is to raise to you issues encountered on the 14th floor.
Concerns and proposals included in this email:

- **Air quality issues identified on the 14th floor.**
- **LEED reporting limits exceed EPA's risk-based regional screening levels for occupational exposure.**
- **Proposal for additional air sampling.**
- **Request for adjustments to the current HVAC system settings.**

Air quality issues identified on the 14th floor

OEA began occupying the 14th floor on Monday August 4, 2014. Almost immediately upon moving in, several employees complained about air quality issues including strong odors or inadequate ventilation, air movement or fresh air intake. In addition, some employees reported experiencing adverse reactions such as tingling lips, itchiness in the back of the throat, respiratory sensitivity, and headaches. Accommodations were made for employees concerned about indoor air quality to temporarily work on other floors or from another approved alternate location.

Indoor air testing was conducted by the landlord, Washington Holdings, prior to the move and the data report provided to OEA staff on July 30, 2014. **A single sample** was collected for the entire 14th floor and it was collected in a location that is not representative of the occupied space. The sample was collected in the "GIS Room" (14-D05). Because this space was designed to house the large plotter and other GIS equipment it has vinyl flooring instead of carpet and no office furniture, items that could be off-gassing and potential sources of volatile organic compounds.

LEED reporting limits exceed EPA's risk-based regional screening levels for occupational exposure

Although the LEED IAQ sampling was reportedly conducted per the construction contract requirements, concerns have been raised about the adequacy of the sampling methodology. In order to evaluate total volatile organic compounds (VOCs), it appears the laboratory contracted by Washington Holdings utilized EPA Method TO-15 and summed all results from the target analyte list. All results were non-detect; however, a review of the results indicates that the reporting limits for many of the compounds were greater than EPA's risk-based Regional Screening Levels for occupational exposure [*link to EPA screening levels*], and much higher than typically seen in TO-15 analyses. **This means that the reporting limits were too high to know whether VOC concentrations pose potential health risks.**

One particular concern is the reporting limit for trichloroethylene (TCE). TCE is a common component of many adhesives and paints (ATSDR, 2009), and its use in building products may lead to off-gassing and air quality issues, particularly in enclosed, indoor spaces. EPA's 2011 Integrated Risk Information System's (IRIS) Toxicological Review for TCE, recommends a reference concentration (RfC) of 2 $\mu g/m^3$ as likely to be without risk of adverse health effects assuming lifetime exposure. The IRIS assessment concluded that TCE exposure can result in toxicity to several organ systems in the developing fetus, including cardiac malformations. TCE is of particular concern for pregnant women and women of child-bearing age.

Consistent with the recommendations of EPA's IRIS program, the potential for adverse health outcomes associated with TCE exposure should be evaluated on an acute basis with exposure concentrations time-weighted over 24 hours. Assuming an eight-hour workday, TCE concentrations should not exceed 6 $\mu g/m^3$, a concentration significantly less than the LEED IAQ reporting limit of 27 $\mu g/m^3$.

Proposal for additional air sampling

To be protective of EPA employees, the common use of TCE in new building materials, and the elevated reporting limits for TCE and other VOCs in the LEED IAQ sampling, additional indoor air sampling is requested to ensure that air in each newly occupied floor does not pose unacceptable risks to human health.

Instead of one sample on each floor, OEA recommends six samples be collected for TO-15 analysis on the 14th floor and before occupancy on the 15th floor. The six sample locations would include one sample in each quadrant in the open space and one sample each in an interior office and in a conference room. Sample collection should be time-integrated over 8 hours. Summa canisters should be placed at an elevation to approximate the breathing zone, which can be accommodated by placing the canisters on desks. Initial sampling should be conducted with the HVAC system off. **Laboratory reporting limits should be less than EPA's occupational risk-based screening levels in air for occupational exposure.**

Sample results for the 14th and 15th floors should be representative of the newly renovated EPA-occupied floors. If the TO-15 summa canister sample results indicate that VOC concentrations do not exceed EPA risk-based screening levels, then there would be no need to conduct additional sampling. If summa canister sample results for the samples collected on the 14th or 15th floors show that any VOC concentration exceeds its respective occupational RSL, then another round of sampling can be conducted with the HVAC system operating normally to more closely replicate typical occupancy conditions.

Request for adjustments to the current HVAC system settings

We also request that the building make temporary adjustments to the HVAC system settings to increase air exchange and improve ventilation. Suggested adjustments include:

- Increasing the ratio of fresh air intake.
- Temporarily adjusting the HVAC system so that the air handlers run continuously, i.e., 24 hours per day, 7 days a week, instead of only during business hours.
- Permanently adjusting the HVAC system to increase air flow in the enclosed offices and conference rooms.

We welcome any additional suggestions from Washington Holdings, Sellen or their HVAC subcontractors to reduce odors and improve air quality on the newly renovated EPA-occupied floors.

References

ATSDR (Agency for Toxic Substances and Disease Registry), 2009. Toxicological Profile for Trichloroethylene.

EPA 2013, Addendum to the Toxicological Review of Trichloroethylene. Office of Research and Development. EPA/635/R-13/113

EPA 2012, OEA Recommendations Regarding Trichloroethylene Toxicity in Human Health Risk Assessments. Memo from Joyce Kelly, OEA Director to Rick Albright, ECL Director and Kate Kelly, OAWT Director.

NRC (National Research Council) 2006. Assessing the human health risks of trichloroethylene: Key scientific issues. Washington, DC: The National Academies Press.

Joyce

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